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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,911	04/18/2001	Hui Wang	495152000111	9922
20872	7590	11/16/2005		
MORRISON & FOERSTER LLP 425 MARKET STREET SAN FRANCISCO, CA 94105-2482			EXAMINER LEADER, WILLIAM T	
			ART UNIT	PAPER NUMBER
			1742	
DATE MAILED: 11/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/837,911

Applicant(s)

WANG, HUI

Examiner

William T. Leader

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 110-129, 133-152 and 156-159 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 110-129, 133-152 and 156-159 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Receipt of the papers filed on August 26, 2005, is acknowledged. Claims 110-129, 133-152 and 156-159 are pending. Claims 130-132 and claims 153-155 have been canceled.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The amendments to the claims are considered to have overcome the rejection under 35 U.S.C. 112, second paragraph.

### *Claim Rejections - 35 USC § 103*

#### *(method claims)*

4. Claims 110, 119, 122, 123, 127 and 129 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Japanese patent publication 04-311591 A to Hirohiko (hereinafter Hirohiko) for the reasons given in the previous office action and in view of the following comments.
5. Claims 111, 112, 124, 125 and 126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311591) as applied to claims 110, 119, 122, 123, 127 and 129 above, and further in

view of Dubin et al (5,882,498) for the reasons given in the previous office action and in view of the following comments.

6. Claims 120 and 121 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311-591) as applied to claims 110, 119, 122, 123, 127 and 129 above, and further in view of Andricacos et al (5,522,975) for the reasons given in the previous office action and in view of the following comments.

7. Claim 128 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311-591) as applied to claims 110, 119, 122, 123, 127 and 129 above, and further in view of Kobayashi et al (5,925,227) for the reasons given in the previous office action and in view of the following comments.

8. Applicant's Remarks have been carefully considered but are not deemed to be persuasive. At page 13 applicant states that the film in the Hirohiko reference is plated across the entire surface of the wafer at one time. Even if this contention were considered to be correct, it is not seen as distinguishing the instant claims as amended from the teaching of Hirohiko. Instant independent claims 110 and 139

are written in open form using the term "comprising". In this type of open claim construction, the claim is open to process steps in addition to those positively recited. Applicant has amended claim 110 to recite the step of plating the film to the desired thickness on at least a second portion of the substrate surface at a different radial location than the first portion to give a film at the desired thickness on the substrate "after plating the film on the first portion of the substrate surface". Claim 139 has been similarly amended. The newly added limitation is considered to require a temporal difference in plating on the first and second portions. That is, plating on a second portion takes place after plating on the first portion. Since the claim is written in open form, the claim as amended is not seen as precluding deposition on the second portion while deposition is being carried out on the first portion. Similarly, the claim as amended is not seen as precluding continued deposition on the first portion while the second portion is being plated.

9. The expression "desired thickness" is considered to include any thickness between the initial deposition thickness and the final thickness obtained at the end of the process. Therefore, while the "desired thickness" may be the final thickness, the expression is not seen as limited to the final thickness. Thus, in a process in which the entire surface is simultaneously plated, a first portion is plated to some desired thickness, while the second portion is simultaneously plated. Hirohiko indicates that precise control is needed if a plating film of precisely uniform film

quality, composition and film thickness on a wafer is to be obtained. Because control may not be sufficiently precise to obtain perfectly uniform deposition at all radial position, the second portion may be plated at a slightly slower rate than the first portion. In this case, as deposition across the entire substrate continues, the second portion reached the desired thickness at some time after the first portion as now recited. Consequently, the claim is considered to read on the Hirohiko, even if the reference is interpreted to disclose plating across the entire surface of the wafer at one time.

*Claim Rejections - 35 USC § 103*

*(apparatus claims)*

10. Claims 113, 115, 116, 118, 137 and 141-143 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Japanese patent publication 04-311591 A to Hirohiko (hereinafter Hirohiko) and further in view of Van Raalte et al (3,880,725) or Kubo et al (5,326,455). All references are applied as in the previous office action with respect to now canceled claims 132 and 155, the limitations of which have been incorporated in independent claims 113 and 142.

11. Claims 114, 138, 139, 144-150 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311591) and further in view of Van Raalte et al (3,880,725) or Kubo et al (5,326,455) as applied to claims 113, 115, 116, 118, 137 and 141-143 above, and additionally in view of Dubin et al (5,882,498). All references are applied as in the previous office action.

12. Claim 117 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311591) and further in view of Van Raalte et al (3,880,725) or Kubo et al (5,326,455) as applied to claims 113, 115, 116, 118, 137 and 141-143 above, and additionally in view of Davis (6,477,440). All references are applied as in the previous office action.

13. Claim 140 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311-591) and further in view of Van Raalte et al (3,880,725) or Kubo et al (5,326,455) as applied to claims 113, 115, 116, 118, 137 and 141-143 above, and additionally in view of Kobayashi et al (5,925,227). All references are applied as in the previous office action.

14. Claims 151 and 152 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311-591), further in view of Van Raalte et al (3,880,725) or Kubo et al (5,326,455) and additionally in view of Dubin et al (5,882,498) as applied to claims 114, 138, 139, 144-150 above, and additionally in view of Kobayashi et al (5,925,227). All references are applied as in the previous office action.

15. Claims 133-135 and 156-158 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Jp 04-311-591) and further in view of Van Raalte et al (3,880,725) or Kubo et al (5,326,455) as applied to claims 113, 115, 116, 118, 137 and 141-143 above, and further in view of Andricacos et al (5,522,975). All references are applied as in the previous office action.

16. Claims 136 and 159 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al (6,176,667) in view of Hirohiko (Ph 04-311591) and further in view of Van Raalte et al (3,880,725) or Kubo et al (5,326,455) and Andricacos et al (5,522,975) as applied to claims 133-135 and 156-158 above, and additionally in view of the Electroplating Engineering Handbook. All references are applied as in the previous office action.



17. Applicant's Remarks have been carefully considered but are not deemed to be persuasive. At pages 13 and 14 of the Remarks, applicant argues that neither the Van Raalte nor the Kubo references disclose or suggest first and second anodes connected to first and second power supplies, respectively, or that the first and second power supplied alternate in providing power to the first and second anodes, respectively. This argument is not convincing. Van Raalte discloses providing first and second anodes each of which are connected to a separate power supply which allows the potential applied to each of the anodes to be independently controlled. See column 3, line 35 to column 4, line 11. Similarly, Kubo discloses providing first and second anodes connected to individual power supplies (column 6, lines 6-25). The claim limitation that the power supplies are configured to alternate in providing power to the first and second anodes is considered to be a functional limitation related to the manner in which the power supplies are operated. The power supplies of Van Raalte and Kubo are capable of being operated to perform the function recited in the instant claims. By simply operating the on-off switches on the power supplies of Van Raalte and Kubo, power may alternately provided to first and second anodes. Alternatively, the power supplies could be selectively disconnected from their source of power, e.g., unplugging from a wall outlet.


18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William Leader  
November 9, 2005

  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700